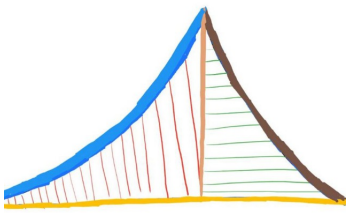
# LILAVATHI

Bhaskaracharya



# Contents

# Introduction

This book links high school coordinate geometry to linear algebra and matrix analysis through solved problems.

# Chapter 1

# Progressions

1.1 Find the partial sums of all numbers from 1 to 9. Find the partial sums of the series thus obtained.

1.2 Find the sum of the squares of the numbers from 1 to 9. Find the sum if the powers are increased by 1.

1.3 If a donor gives a Brahman 4 Dramm and donates 5 Dramm every day from the next day onwards, how many Dramm did he donate in 15 days?

1.4 The first term of an A.P. is 7, the common difference is 5 and the number of terms is 8. Find the middle term, end term and sum of all terms.

1.5 A king wants to capture the elephants located in his enemy's city, located at a distance of 80 Yojan. On the first day he travels 2 Yojan. How many equal Yojans does he need to travel from the next day onwards if he wants to reach the city in 7 days?

1.6 A donor gives a Brahman 3 Dramm on the first day and 2 Dramm

everyday from the second day onwards. How many days does it take for him to give 360 Dramm in total?

1.7 The sum of 7 terms of an A.P. is 105 and the common difference is 3. Find the first term.

1.8 A person donates 2 varatak on the first day and doubles this donation from the second day onwards. How many nishaks does she donate at the end of 30 days.

1.9 If the first term of a G.P. is 2, common ratio 3 and and number of terms is 7, then find the sum.

# Chapter 2

# Geometry

2.1 If the altitude of a right triangle is 4 and the base is 3, find the hypotenuse.

2.2 If the base and altitude of a right triangle are $\frac{13}{4}$, find the length of the hypotenuse.

2.3 If the base of a right triangle is 12, find the possible integer values of the altitude and the hypotenuse.

2.4 If the hypotenuse of a triangle is 85, find the base and altitude in integers.

2.5 Find possible values of the base, altitude and hypotenuse of a triangle.

2.6 A bamboo of height 32 breaks due to wind and the tip touches the ground at a distance of 16 from the base. Find the height of the bamboo.

2.7 At the base of a pillar of height 9 hands is a snake hole. A peacock sitting on top of the pillar sees a snake 27 hands from its hole and flies to catch it in the direction of the hypotenuse. If the speed of the

snake and the peacock are the same, find the distance from the hole at which the snake is caught.

# Appendix A

# Definitions

| **Currency** | **Value (varatak)** |
|---|---:|
| kakini | 20 |
| pan | 80 |
| dramm | 1280 |
| nishk | 20480 |

Table A.1.2:

A.1